AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application.

What is claimed is:

1. (currently amended) An optical communications system employing radio frequency signals, the system comprising:

a plurality of optical transceiver units including at least one optical transceiver unit in communication with at least one base station of a plurality of base stations in a cellular wireless communications network, the at least one optical transceiver unit communicates reverse link radio frequency signals to the at least one base station and receives forward link radio frequency signals from the at least one base station;

at least one remote unit which is remote from the at least one optical transceiver unit, the at least one remote unit provides a radio connection point for mobile terminals in an associated coverage area, the at least one remote unit comprising at least one optoelectronic transducer for converting optical data signals to radio frequency signals and converting radio signals to optical signals, and at least one antenna to receive and send radio frequency signals;

at least one optical fiber data link between the at least one optical transceiver unit and the at least one remote unit for transmitting optical data signals therebetween; ~~and~~

at least one optical fiber power link between the at least one optical transceiver unit and the at least one remote unit for providing electrical power at the at least one remote unit;

a radio frequency combiner between the plurality of optical transceiver units and the plurality of base stations which combines reverse link radio frequency signals which are received from the plurality of optical transceiver units; and

a radio frequency splitter which splits the combined reverse link radio frequency signals, the radio frequency splitter is in communication with the plurality of base stations and is associated with the radio frequency combiner.

2. (Previously presented) The optical communications system according to claim 1 wherein the at least one optoelectronic transducer comprises an electroabsorption transceiver.

3. (Previously presented) The optical communications system according to claim 1 wherein the at least one optoelectronic transducer comprises a first optoelectronic transducer for converting optical data signals to radio frequency signals and a second optoelectronic transducer for converting radio frequency signals to optical signals.

4. (Previously presented) The optical communications system according to claim 3 wherein the first and second optoelectronic transducers are low power consumption devices.

5. (Previously presented) The optical communications system according to claim 4 wherein the second optoelectronic transducer comprises a VCSEL laser.

6. (Previously presented) The optical communications system according to claim 3 wherein the second optoelectronic transducer comprises an edge-emitting laser.

7. (Cancelled)

8. (Cancelled)

9. (currently amended) The optical communications system according to claim 1, further comprising:

the ~~a~~ radio frequency combiner ~~between the at least one optical transceiver unit and a plurality of base stations in the cellular wireless communications network for combining~~ combines forward link radio frequency signals which are received from the plurality of base stations.

10. (Cancelled)

11. (currently amended) The optical communications system according to claim 1 wherein an optical fiber provides both the at least one optical fiber data link and the at least one optical fiber power link using wavelength division multiplexing.

12. (Cancelled)

13. (Previously presented) The optical communications system according to claim 1, wherein the radio frequency signals comprise multiple radio carriers within multiple frequency bands with multiple protocols.

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Previously presented) An optical communications system employing radio frequency signals, the system comprising:

a central unit;

at least one remote unit, which is remote from the central unit, the at least one remote unit provides a radio connection point for mobile terminals in an associated coverage area, said at least one remote unit having first means for converting optical data signals to radio frequency signals and converting radio frequency signals to optical data signals, second means for converting optical data signals into baseband digital signals and converting baseband digital signals to optical data signals, and at least one antenna to receive and send radio frequency signals, the second means communicates with a local area network;

at least one optical fiber data link between the central unit and the at least one remote unit, and associated with the first means, for transmitting optical data signals;

at least one optical fiber data link between the central unit and the at least one remote unit, and associated with the second means, for transmitting optical data signals; and

at least one optical fiber power link between the central unit and the at least one remote unit for providing electrical power at the at least one remote unit.

19. (Previously presented) The optical communications system according to claim 18 wherein the baseband digital signals are used in a protocol of the local area network.

20. (Previously presented) The optical communications system according to claim 19 wherein the local area network protocol is Ethernet.

21. (Cancelled)

22. (Previously presented) The optical communications system according to claim 1, wherein:

the at least one remote unit comprises a photovoltaic converter for converting optical power from the at least one optical fiber power link into electrical power, and an amplifier coupled between the at least one optoelectronic transducer and the at least one antenna, the amplifier amplifies the radio frequency signals obtained by the converting of the optical data signals for transmission to the mobile terminals, the amplifier is coupled to the photovoltaic converter for receiving the electrical power.

23. (Previously presented) The optical communications system according to claim 1, wherein:

the at least one remote unit comprises at least one active component, a photovoltaic converter for converting optical power from the at least one optical fiber power link into electrical power, and a regulator for converting the electrical power into a constant voltage or a constant current form that is required to power the at least one active component.

24. (cancelled)

25. (currently amended) The optical communications system according to claim 1, wherein:

the at least one optical transceiver unit comprises a first, high power laser diode coupled to the at least one optical fiber power link and a second laser diode coupled to the at least one optical fiber data link.

26. (Previously presented) The optical communications system according to claim 25, wherein:

the high power laser diode provides radiation on the at least one optical fiber power link with a power of about 500 mW.

27. (Previously presented) The optical communications system according to claim 25 wherein:

the high power laser diode provides radiation on the at least one optical fiber power link with a power of at least 2 W.

28. (Previously presented) The optical communications system according to claim 1, further comprising:

a plurality of remote units, each providing a radio connection point for mobile terminals in associated coverage areas;

at least one optical fiber data link between the at least one optical transceiver unit and each of the remote units for transmitting optical data signals therebetween; and

at least one optical fiber power link between the at least one optical transceiver unit and each of the remote units for providing electrical power at each of the remote units.

29. (cancelled)

30. (Cancelled)

31. (Previously presented) An optical communications system employing radio frequency signals, the system comprising:

a plurality of base stations in a cellular wireless communications network;

a central unit comprising a plurality of optical transceiver units and a radio frequency splitter-combiner, the radio frequency splitter-combiner is operatively provided between the plurality of optical transceiver units and the plurality of base stations;

a plurality of remote units which are remote from the central unit, each remote unit provides a radio connection point for mobile terminals in an associated coverage area, the plurality of remote units transmit forward link radio frequency signals to mobile terminals via respective antennas and receive reverse link radio frequency signals from mobile terminals via respective antennas, each remote unit is associated with a different one of the optical transceiver units; and

a different optical fiber data link and a different optical fiber power link between each remote unit and its associated optical transceiver unit.

32. (Previously presented) The optical communications system according to claim 31, wherein:

the radio frequency splitter-combiner combines forward link radio frequency signals which are received from the plurality of base stations.

33. (Previously presented) The optical communications system according to claim 31, wherein:

the radio frequency splitter-combiner combines reverse link radio frequency signals which are received from the plurality of optical transceiver units.

34. (Previously presented) The optical communications system according to claim 33, wherein:

the radio frequency splitter-combiner splits the combined reverse link radio frequency signals.

35. (new) An optical communications system employing radio frequency signals, the system comprising:

a plurality of optical transceiver units including at least one optical transceiver unit in communication with at least one base station of a plurality of base stations in a cellular wireless

communications network, the at least one optical transceiver unit communicates reverse link radio frequency signals to the at least one base station and receives forward link radio frequency signals from the at least one base station;

a plurality of respective remote units including at least one remote unit which is remote from the at least one optical transceiver unit, the at least one remote unit provides a radio connection point for mobile terminals in an associated coverage area, the at least one remote unit comprising at least one optoelectronic transducer for converting optical data signals to radio frequency signals and converting radio signals to optical signals, and at least one antenna to receive and send radio frequency signals;

at least one optical fiber data link between the at least one optical transceiver unit and the at least one remote unit for transmitting optical data signals therebetween;

at least one optical fiber power link between the at least one optical transceiver unit and the at least one remote unit for providing electrical power at the at least one remote unit

a plurality of optical transceiver units;

a radio frequency combiner between the plurality of optical transceiver units and the plurality of base stations which combines reverse link radio frequency signals which are received from the plurality of optical transceiver units;

the plurality of respective remote units provide respective radio connection points for mobile terminals in associated respective coverage areas, each respective remote unit is in communication with a different respective optical transceiver unit of the plurality of optical transceiver units;

a different optical fiber data link between each respective optical transceiver unit and its respective remote unit for transmitting optical data signals therebetween; and

a different optical fiber power link between each respective optical transceiver unit and its respective remote unit for providing electrical power at the respective remote unit.